

Lecture 2 at Kyung Hee University

Radiation Belt Environment Model: Application to Space Weather and Beyond

Understanding the dynamics and variability of the radiation belts are of great scientific and space weather significance. A physics-based Radiation Belt Environment (RBE) model has been developed to simulate and predict the radiation particle intensities. The RBE model considers the influences from the solar wind, ring current and plasmasphere. It takes into account the particle drift in realistic, time-varying magnetic and electric field, and includes diffusive effects of wave-particle interactions with various wave modes in the magnetosphere. The RBE model has been used to perform event studies and real-time prediction of energetic electron fluxes. In this talk, we will describe the RBE model equation, inputs and capabilities. Recent advancement in space weather application and artificial radiation belt study will be discussed as well.